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# Natural history of spinal cord metastasis from brain glioblastomas

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## Abstract

**Background and objectives:** Spinal cord metastasis arising from an intracranial glioblastoma is a rare and late event during the natural course of the disease. These pathological entities remain poorly characterized. This study aimed to identify and investigate the timeline, clinical and imaging findings, and prognostic factors of spinal cord metastasis from a glioblastoma.

**Methods:** Consecutive histopathological cases of spinal cord metastasis from glioblastomas in adults entered in the French nationwide database between January 2004 and 2016 were screened.

**Results:** Overall, 14 adult patients with a brain glioblastoma (median age 55.2 years) and harboring a spinal cord metastasis were included. The median overall survival was 16.0 months (range, 9.8-22.2). The median spinal cord Metastasis Free Survival (time interval between the glioblastoma diagnosis and the spinal cord metastasis diagnosis) was 13.6 months (range, 0.0-27.9). The occurrence of a spinal cord metastasis diagnosis greatly impacted neurological status: 57.2% of patients were not ambulatory, which contributed to dramatically decreased Karnofsky Performance Status (KPS) scores (12/14, 85.7% with a KPS score  $\leq$  70). The median overall survival following spinal cord metastasis was 3.3 months (range, 1.3-5.3). Patients with a cerebral ventricle effraction during the initial brain surgery had a shorter spinal cord Metastasis Free Survival (6.6 vs 18.3 months,  $p = 0.023$ ). Out of the 14 patients, eleven (78.6%) had a brain IDH-wildtype glioblastoma.

**Conclusions:** Spinal cord metastasis from a brain IDH-wildtype glioblastoma has a poor prognosis. Spinal MRI can be proposed during the follow-up of glioblastoma patients especially those who have benefited from cerebral surgical resection with opening of the cerebral ventricles.

**Keywords:** Glioblastoma; IDH-wildtype; Spinal cord metastasis; Survival.

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